

**INFORMATION
ONLY**

**ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE**

Manual No.:

**2-11000-ER-ADM
(a.k.a. 3-21000-ADM)**

**ERPD ADMINISTRATIVE
PROCEDURES MANUAL
CATEGORY 1**

Procedure No.:

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Effective Date:

11/10/94

Organization:

Environmental Restoration

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ADMINISTRATIVE

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INFORMATION ONLY

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

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Rocky Flats Environmental Technology Site

INFORMATION
ONLY

2-J76-ER-ADM-08.05

REVISION 0

**DATA COMPLETENESS CHECK AND
CONTRACT-COMPLIANCE SCREENING**

APPROVED BY:

S.G. Stiger

Director,

EG&G Environmental Restoration Program Division

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Print Name

1 10-28-94

Date

[Signature]

Quality Assurance Program Manager

Data Management and Reporting Services

[Signature]

Print Name

1 10-27-94

Date

DOE RFFO/ER Concurrence on file: ☒ Yes ☐ No ☐ N/AEnvironmental Protection Agency Approval Required: ☐ Yes ☒ No ☐ N/AResponsible Organization: Environmental Restoration Program Division

Effective Date: _____

CONCURRENCE BY THE FOLLOWING DISCIPLINES WILL BE DOCUMENTED IN THE PROCEDURE HISTORY FILE:

Data Management and Reporting Services
Geoscience Core
Performance Assurance**USE CATEGORY 3**

ORC review not required

The following have been incorporated in this revision:
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Periodic review frequency: 1 year from the effective date

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1. **PURPOSE**

This procedure establishes the requirements for performing data completeness checks and contract-compliance screening for Rocky Flats Plant (RFP) Environmental Restoration Program Division (ERPD) data packages in accordance with 2-J77-ER-ADM-08.03, Graded Validation.

2. **SCOPE**

This procedure applies to ERPD employees and subcontractors.

This procedure supports the sampling activities of ERPD and applies to all sample delivery groups (SDGs) generated by and received from laboratories performing analyses for the Sample Management Office (SMO).

This procedure addresses the following topics:

- Data completeness checks
- Contract-compliance screening

3. **OVERVIEW**

SDGs consist of the following items:

- Cover sheet or transmittal letter
- Case narrative specific to the SDG
- Data summary forms
- Copies of items listed on the checklists in the appendixes

All SDGs receive the data completeness check. However, only the SDGs selected for validation in accordance with 2-J77-ER-ADM-08.03 receive the contract-compliance screening.

Copies of supporting documentation are organized by SDG, and originals are maintained by the laboratories.

4. **DEFINITIONS**

Contract Compliance Screening (CCS). The screen that is performed during data validation to ensure laboratory compliance with the statement of work for analytical services. This screen ensures that all requisite data and documentation are included within the SDG.

Contractor Technical Representative (CTR). The primary contact(s) within the SMO with responsibility for enforcing the technical contractual obligations of the subcontractors.

4. **DEFINITIONS (continued)**

Data Completeness Check. The verification that is performed on laboratory data packages to ensure that the required deliverables have been submitted. This check ensures that each package contains the minimum requirements to proceed with data validation.

Data Completeness Technician (DCT). The technician who performs the data completeness check.

General Radiochemistry and Routine Analytical Services Protocol (GRRASP). The statement of work for radiochemistry and general chemistry analytical services.

Missing Data Request (MDR). The formal document used to create a written record that tracks the requested missing documentation.

Missing Package Request (MPR). The formal document used to create a written record that tracks the requested missing package(s).

Package. Paperwork submitted with SDGs that may consist of:

- Quality control data.
- Raw sample data.
- Standards data.
- Raw quality control data.
- Standard preparation logs.
- Sample digestion logs.
- Resolution.
- Calibrations.

Sample Delivery Group (SDG). Samples received at the laboratory in one or more shipments. Samples from more than one chain-of-custody may be combined to form a single SDG. Samples in a SDG are validated as a group.

Sample Management Office (SMO). The ERPD SMO at RFP that manages the laboratory contracts, sample tracking, data receipt, data validation, and data dissemination.

Subcontractor Laboratories. EG&G Rocky Flats, Inc. approved offsite analytical laboratories.

Validation Technician. The person who performs the qualification of the data by using functional guidelines developed for the validation process.

5. RESPONSIBILITIES

5.1 Data Completeness Technician

Performs data completeness checks on SDGs.

Initiates MPRs.

5.2 Validation Subcontractor

Ensures that SDGs are complete and comply with the appropriate checklists as in the appendixes.

Manages quality records generated by this procedure.

5.3 Validation Technician

Performs contract compliance screening on SDGs.

Initiates MDRs.

6. INSTRUCTIONS

6.1 Data Completeness Checks

DCT

- [1] Perform data completeness checks as SDGs are received from laboratories.

The data completeness checks do not require that the DCT be in receipt of the electronic deliverable.

- [2] Complete the appropriate data completeness checklist on:

- Appendix 1, Radiochemistry Data Completeness Checklists.
- Appendix 2, Organics Data Completeness Checklist, Pesticides.
- Appendix 3, Organics Data Completeness Checklist, Volatiles/Semi-volatiles.
- Appendix 4, Metals Data Completeness Checklist.
- Appendix 5, Water Quality Parameters Data Completeness Checklist.

- [3] Record *Yes* or *No* beside each required item listed on the appropriate checklist.

- [4] IF the requisite documentation is missing from the SDG,
THEN:

[A] Initiate MPRs (See Appendix 11 for sample MPR).

[B] Require that the laboratory respond to the MPR with the missing documentation within 3 working days of the MPR.

[C] Facsimile (Fax) a copy of the MPR to the SMO for evaluation.

[D] Verify the receipt of the missing package.

[E] Close the MPR when the receipt is verified.

[F] File the MPR with the appropriate SDG and notify the SMO that the MPR has been closed.

- [5] IF the requisite documentation is missing from an SDG,
AND a laboratory fails to submit the missing documentation within the required 3 working days,
THEN notify the appropriate CTR.

6.2 Contract-compliance Screening

Validation Technician

- [1] Perform the contract-compliance screening on selected SDGs.

Radiochemistry SDGs are segregated by instrumentation, or method, as applicable, for validation. SDGs are randomly selected for validation in accordance with 2-J77-ER-ADM-08.03.

The contract-compliance screening does not require that the validation technician be in receipt of the electronic deliverable.

- [2] Complete the appropriate contract-compliance checklist on:
- Appendix 6, Radiochemistry Contract Compliance Checklist.
 - Appendix 7, Organics Contract Compliance Checklist, Pesticides.
 - Appendix 8, Organics Contract Compliance Checklist, Volatiles/Semi-volatiles.
 - Appendix 9, Metals Contract Compliance Checklist.
 - Appendix 10, Water Quality Parameters Contract Compliance Checklist.
- [3] Record *Yes* or *No* beside each required item listed on the appropriate checklist.
- [4] **IF** the requisite documentation is missing from the SDG,
THEN:
- [A] Initiate MDRs (See Appendix 12 for sample MDR).
 - [B] Require that the laboratory respond to the MDR with the missing documentation within 3 working days of the faxed request.
 - [C] Fax a copy of the MDR to the SMO for evaluation.
 - [D] Verify the receipt of the missing documentation.
 - [E] Close MDRs when the analysis is complete.
 - [F] File the MDR with the appropriate SDG and notify the SMO that the MDR has been closed.
 - [G] Validate the SDG after the missing data has been received and verified.
- [5] **IF** the requisite documentation is missing from an SDG,
AND a laboratory fails to submit the requisite documentation within the required 3 working days,
THEN notify the appropriate CTR.

7. RECORDS

Management of all records is consistent with 1-77000-RM-001, Records Management Guidance for Records Sources.

The records generated as a result of this procedure are considered quality records and are managed in accordance with 2-G18-ER-ADM-17.01, Records Capture and Transmittal.

There are no nonquality records generated by this procedure.

Validation Subcontractor

- [1] Manage records in accordance with 1-77000-RM-001.
- [2] Manage documentation generated as a result of this procedure in accordance with 2-G18-ER-ADM-17.01.

8. REFERENCES

1-77000-RM-001, Records Management Guidance for Records Sources

2-G18-ER-ADM-17.01, Records Capture and Transmittal

2-J77-ER-ADM-08.03, Graded Validation

APPENDIX 1

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RADIOCHEMISTRY DATA COMPLETENESS CHECKLISTS

Alpha Spectrometry

- A. _____ Cover Sheet or Transmittal Letter
- B. _____ Case Narrative
 _____ Copy of Chain of Custody
- C. _____ Calibrations Data Package
- D. _____ Laboratory Blanks Data Package
- E. _____ Lab Replicate Sample Data Package
- F. _____ Lab Control Samples (LCSs) Data Package
- G. _____ Resolution Package
- H. _____ Sample Data Package

Technician

Date

APPENDIX 1

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Tritium

- A. _____ Cover Sheet or Transmittal Letter
- B. _____ Case Narrative
_____ Copy of Chain-of-Custody
- C. _____ Calibration and Instrument Performance Verification Data Package
- D. _____ Background Water and Preparation Blanks Data Package
- E. _____ Replicate Sample Data Package
- F. _____ LCSs Data Package
- G. _____ Quench and Efficiency Package
- H. _____ Sample Data Package

Technician

Date

APPENDIX 1

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Gamma Spectrometry

- A. _____ Cover Sheet or Transmittal Letter
- B. _____ Case Narrative
_____ Copy of Chain-of-Custody
- C. _____ Instrument Performance Verification Package
- D. _____ Laboratory Blanks Data Package
- E. _____ LCSs Data Package
- F. _____ Sample Data Package

Technician

Date

APPENDIX 1

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Gross Alpha and Beta

- A. _____ Cover Sheet or Transmittal Letter
- B. _____ Case Narrative
 _____ Copy of Chain-of-Custody
- C. _____ Gross Alpha Self-absorption Curve Data Package
 _____ Gross Beta Self-absorption Curve Data Package
- D. _____ Gross Alpha Instrument Performance Verification Data Package
 _____ Gross Beta Instrument Performance Data Package
- E. _____ Gross Alpha Laboratory Blanks Data Package
 _____ Gross Beta Laboratory Blanks Data Package
- F. _____ Gross Alpha Lab Replicate Sample Data Package
 _____ Gross Beta Lab Replicate Sample Data Package
- G. _____ Gross Alpha LCSs Data Package
 _____ Gross Beta LCSs Data Package
- H. _____ Gross Alpha Sample Data Package
 _____ Gross Beta Sample Data Package

Technician

Date

APPENDIX 1

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²²⁶Radium by Radon Emanation

- A. _____ Cover Sheet or Transmittal Letter
- B. _____ Case Narrative
_____ Copy of Chain-of-Custody
- C. _____ Calibration and Instrument Performance Verification Data Package
- D. _____ Laboratory Blanks Data Package
- E. _____ Replicate Sample Data Package
- F. _____ LCSs Data Package
- G. _____ Cell Constant Data Package
- H. _____ Sample Data Package

Technician

Date

APPENDIX 1

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Radiometric Strontium, Cesium, and ²²⁸Radium by Gas Proportional Counter (GPC)

- A. _____ Cover Sheet or Transmittal Letter
- B. _____ Case Narrative
 _____ Copy of Chain-of-Custody
- C. _____ Strontium Initial Calibration Data Package
 _____ Cesium Initial Calibration Data Package
 _____ ²²⁸Ra Initial Calibration Data Package
- D. _____ Instrument Performance Verification Data
- E. _____ Strontium Laboratory Blanks Data
 _____ Cesium Laboratory Blanks Data
 _____ ²²⁸Ra Laboratory Blanks Data Package
- F. _____ Strontium Replicate Sample Data Package
 _____ Cesium Replicate Sample Data Package
 _____ ²²⁸Ra Replicate Sample Data Package
- G. _____ Strontium LCSs Data Package
 _____ Cesium LCSs Data Package
 _____ ²²⁸Ra LCSs Data Package
- H. _____ Strontium Chemical Recovery Factors Package
 _____ Cesium Chemical Recovery Factors Package
 _____ ²²⁸Ra Chemical Recovery Factors Package
- I. _____ Strontium Efficiency Factors Data Package
 _____ Cesium Efficiency Factors Data Package
 _____ ²²⁸Ra Efficiency Factors Data Package

APPENDIX 1

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**Radiometric Strontium, Cesium, and ²²⁸Radium by Gas Proportional
Counter (GPC) (continued)**

- J. _____ Strontium Sample Data Package
 _____ Cesium Sample Data Package
 _____ ²²⁸Ra Sample Data Package

Technician

Date

APPENDIX 1

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Total Uranium by KLP

- A. _____ Cover Sheet or Transmittal Letter
- B. _____ Case Narrative
 _____ Copy of Chain-of-Custody
- C. _____ Calibrations, Background, and Reference Cell Data Package
- D. _____ Laboratory Blanks Data Package
- E. _____ Lab Replicate Sample Data Package
- F. _____ LCSs Data Package
- G. _____ Sample Data Package

_____/_____
Technician Date

Page 1 of 1

Pesticides

- | | | |
|----|-------|---|
| A. | _____ | Cover Sheet or Transmittal Letter (one per data package shipment) |
| B. | _____ | Case Narrative |
| | _____ | Copy of Chain-of-Custody |
| C. | _____ | Quality Control (QC) Summary Package |
| D. | _____ | Sample Data Package (Alphanumerically) |
| E. | _____ | Standards Data Package (Chronologically by Gas Chromatograph Column and Instrument) |
| F. | _____ | Raw QC Data Package |
| G. | _____ | Sample Tracking Package |

_____/_____
Technician Date

APPENDIX 3

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ORGANICS DATA COMPLETENESS CHECKLIST

Volatiles/Semi-volatiles

- A. _____ Cover Sheet or Transmittal Letter (one per data package shipment)
- B. _____ Case Narrative
 _____ Copy of Chain-of-Custody
- C. _____ QC Summary Package
- D. _____ Sample Data Package (Alphanumerical)
- E. _____ Standards Data Package (Chronologically by Instrument)
- F. _____ Raw QC Data Package
- G. _____ Sample Tracking Package

Technician

Date

APPENDIX 4

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METALS DATA COMPLETENESS CHECKLIST

- A. _____ Cover Sheet or Transmittal Letter (one per data package shipment)
- B. _____ Case Narrative
_____ Copy of Chain-of-Custody
- C. _____ Quality Control Summary Package
- D. _____ Raw Data Package
_____ Inductively Coupled Plasma (ICP) Data Package
_____ Atomic Absorption (AA) Data Package
_____ Toxicity Characteristic Leaching Procedure (TCLP)
Data Package
- E. _____ Sample Digestion Logs Package
- F. _____ Standard Preparation Logs Package
- G. _____ Sample Description Package

Technician

Date

APPENDIX 5

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WATER QUALITY PARAMETERS DATA COMPLETENESS CHECKLIST

- A. _____ Cover Sheet or Transmittal Letter (one per data package shipment)
 _____ Case Narrative or Chain-of-Custody
- B. _____ Quality Control Summary Package
- C. _____ Raw Data Package
- D. _____ Standard Preparation Logs Package
 _____ Instrument Run Logs Package (where applicable)

Technician

Date

APPENDIX 6

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RADIOCHEMISTRY CONTRACT COMPLIANCE CHECKLIST

Alpha Spectrometry

- A. _____ Case Narrative
- _____ Copy of Chain-of-Custody
 - _____ SDG Number; cross reference lab sample identification (ID) to client ID
 - _____ Preparation Batch Code
 - _____ Abnormalities, reanalyses, or standard operating procedure (SOP) deviations explained
 - _____ Matrix problems explained
 - _____ Instrument problems explained
 - _____ Failure to achieve required detection limits (RDLs)
- B. _____ Calibrations Data Package
- _____ Detector ID
 - _____ Spreadsheet with dates of last efficiency check including: disintegration per minute (DPMs) of check sources; counts obtained; count duration; and, channels selected for regions of interest (ROIs)
 - _____ Proper channel numbers of isotopes of interest, based on calibration data of plutonium (Pu), americium (Am), and uranium (U) standards
 - _____ Total memory (channels per detector)
 - _____ Spreadsheet with dates of last background including: count duration; counts obtained; and channels selected for ROIs
- C. _____ Laboratory Blanks Data
- _____ Detector ID
 - _____ Analysis date
 - _____ Aliquot
 - _____ Blank ID
 - _____ Aliquot
 - _____ Calculated activities, uncertainties, and minimum detectable activity (MDA)

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Alpha Spectrometry (continued)

- D. _____ Lab Replicate Sample Data
_____ Detector ID
_____ Date replicate(s) were analyzed
_____ Replicate IDs
_____ Count duration of replicate(s)
_____ Aliquot
_____ Calculated activities, uncertainties, and MDA
- E. _____ Lab Control Samples (LCSs) Data
_____ Detector ID
_____ Aliquot
_____ Date LCSs were analyzed
_____ LCS ID
_____ Observed activities, uncertainties, and MDA
_____ Expected activities with uncertainty
- F. _____ Resolution
_____ System gain (in keV/Channel)
_____ Full Width Half Maximum (FWHM) (in channels or keV)
_____ for isotopic tracer
_____ Energy range of the alpha detection system (keV)
- G. _____ Sample Data Package
_____ Printed report of results including: sample IDs; detector IDs; interesting isotopes; counts obtained and count duration; background counts and count duration; isotopic tracer counts obtained; DPMs of tracer used; aliquots of samples; detector efficiency; chemical recoveries; calculated activities and uncertainties

Technician

Date

APPENDIX 6

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Tritium

A. _____ Case Narrative

_____ Copy of Chain-of-Custody
_____ SDG number; cross reference lab sample ID to client ID
_____ Preparation Batch Code
_____ Abnormalities, reanalyses, or SOP deviations explained
_____ Matrix problems explained
_____ Instrument problems explained
_____ Improper preservation explained
_____ RDLs met, explained if not met

B. _____ Calibration and Instrument Performance Verification Data Package

_____ Instrument ID number, manufacturer, and model number,
with program settings
_____ Date of performance check
_____ National Institute of Standards and Technology (NIST)- traceable
reference material certificates with expiration date and DPM activity
of unquenched standard
_____ Raw data from instrument
_____ Efficiency obtained for unquenched standard
_____ Quench monitor values and counts per min. (CPM) for standard used
to check long term performance of cocktail and instrument
_____ Background water and preparation blank vials CPMs

C. _____ Background Water and Preparation Blanks Data

_____ Instrument ID
_____ Date background water and preparation blanks were analyzed
_____ Aliquot of background water and preparation blanks

APPENDIX 6

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Tritium (continued)

- D. _____ Replicate Sample Data
_____ Instrument ID
_____ Date analyzed
_____ Distillation date
_____ Sample IDs
_____ Count duration
_____ Aliquot
_____ Calculated activities, uncertainties, and MDAs
- E. _____ Lab Control Samples (LCSs) Data
_____ Instrument ID
_____ Date analyzed
_____ ID of LCS, ID of spike concentrate used to prepare LCS,
and expected value with uncertainty
_____ Calculated activities, uncertainties, and MDAs
- F. _____ Quench and Efficiency
_____ Instrument ID
_____ Quench monitor used
_____ Quench monitor values and efficiency values
_____ Date of last quench curve check
_____ Efficiency standard and backgrounds used
_____ Volume added to cocktail, cocktail used, and vials used
_____ Instrument settings used when efficiencies and quench curve
were analyzed
_____ Volume of spike added to cocktail for internal
standardization method
_____ Best fit curve coefficients for quench curve method

APPENDIX 6

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Tritium (continued)

G. _____ Sample Data Package

- _____ Printed report of results for sample, reruns
- _____ Computer calculations sheet including: sample IDs, sample counts, background counts, sample aliquot, distillation date, count date, count duration, instrument efficiency, and activities, uncertainties, and MDAs
- _____ Raw data from counter, copies of notebook pages
- _____ Instrument counting logs

Technician

Date

APPENDIX 6

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Gamma Spectrometry

- A. _____ Case Narrative
- _____ Copy of Chain-of-Custody
 - _____ SDG Number; cross reference lab sample ID to client ID
 - _____ Preparation Batch Code
 - _____ Abnormalities, reanalyses, or SOP deviations explained
 - _____ Detector problems explained
 - _____ RDLs met, explained if not met
- B. _____ Biannual Energy Calibration
- _____ Detector ID
 - _____ Date of the calibration check; channel by channel printout; identification and DPS values of checksources; counts and count duration; calibrated energy (in keV) for each peak of interest; calibrated centroid channel number for each peak of interest; observed channel number for each peak of interest; offset value; and, calculated slope from the least squares fit of the calibration data
 - _____ FWHM of the peaks
 - _____ Energy range (in keV) of the gamma detection system; channels of memory
- C. _____ Biannual Efficiency Calibration
- _____ Detector ID
 - _____ Date of the efficiency calibration to include: geometry, matrix, weight for which the efficiency curve is constructed; line intensity of each nuclide of interest; counts per second observed for each peak of interest; identification, certification, expiration dates and DPS values of checksource; observed efficiency, observed energy, observed channel number of each nuclide; and plot of energy versus efficiency
 - _____ Integrated area of the peak ROIs; count duration

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Gamma Spectrometry (continued)

- D. _____ Instrument Performance Verification
- _____ Daily energy checksource raw data submitted with each SDG
- _____ Daily efficiency verification performed with same source and submitted with each SDG
- _____ Dates of last background spectra including: spectra and/or channel by channel printout; count duration; counts obtained for the peak ROIs; and compared to a long term background spectra
- E. _____ Laboratory Blanks Data
- _____ Detector ID
- _____ Blank ID
- _____ Background counts and count duration
- _____ Blank counts and count duration of blanks
- _____ Date blanks were analyzed
- _____ Aliquot, weight, matrix, and geometry
- _____ Calculated activities, uncertainties, and MDA
- F. _____ LCSs Data
- _____ Detector ID
- _____ Analysis date
- _____ ID, aliquot, weight, and geometry of LCS
- _____ LCS counts and count duration
- _____ Background counts and count duration
- _____ Calculated activities, uncertainties, and MDA
- _____ Expected value of LCSs with uncertainty

APPENDIX 6

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Gamma Spectrometry (continued)

G. _____ Sample Data Package

_____ Printed report of results for samples and reruns
_____ Computer calculations sheet including: detector ID; date of
analysis; sample ID; names of nuclides detected; counts
and count duration; background counts and count duration;
energy and channel number for each analysis; FWHM of
each peak of interest; weight, matrix, and geometry of the
samples; and calculated activities, uncertainties, and MDAs

Technician

Date

APPENDIX 6

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Gross Alpha and Beta

A. _____ Case Narrative

_____ Copy of Chain-of-Custody
_____ SDG Number; cross reference lab sample ID to client ID
_____ Preparation Batch Code
_____ Abnormalities, reanalyses, or SOP deviations explained
_____ Matrix problems explained
_____ Instrument problems explained
_____ RDLs met, explained if not met

B. _____ Gross Alpha Self-Absorption Curve Data Package

_____ Gross Beta Self-Absorption Curve Data Package

Alpha

Beta

_____	_____	Detector ID
_____	_____	Date and time curve generated, curve checked
_____	_____	Radionuclide standard name, NIST certification and expiration dates, and DPM value
_____	_____	Aliquot of standards used
_____	_____	Raw data from counters showing counts obtained and count duration for each weight of salt
_____	_____	Weights of salts
_____	_____	Efficiencies
_____	_____	Best fit curve coefficients

APPENDIX 6

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Gross Alpha and Beta (continued)

- C. _____ Gross Alpha Instrument Performance Verification Data
_____ Gross Beta Instrument Performance Data
- | <u>Alpha</u> | <u>Beta</u> | |
|--------------|-------------|--|
| _____ | _____ | Detector ID |
| _____ | _____ | Date of verification check, |
| _____ | _____ | Reliability checksource name, NIST certification,
expiration and DPM activity |
| _____ | _____ | Raw data from counters showing counts obtained
and count duration for reliability checksource |
| _____ | _____ | Efficiency obtained for checksource |
| _____ | _____ | Background counts obtained and count duration for
each detector |
- D. _____ Gross Alpha Laboratory Blanks Data
_____ Gross Beta Laboratory Blanks Data
- | <u>Alpha</u> | <u>Beta</u> | |
|--------------|-------------|---|
| _____ | _____ | Detector ID |
| _____ | _____ | Analysis date |
| _____ | _____ | Count duration |
| _____ | _____ | Aliquot |
| _____ | _____ | Calculated activities, uncertainties, and
MDAs |
| _____ | _____ | Blank ID and matrix used |
- E. _____ Gross Alpha Lab Replicate Sample Data
_____ Gross Beta Lab Replicate Sample Data
- | <u>Alpha</u> | <u>Beta</u> | |
|--------------|-------------|---|
| _____ | _____ | Detector ID |
| _____ | _____ | Analysis date |
| _____ | _____ | Replicate IDs |
| _____ | _____ | Count duration |
| _____ | _____ | Aliquot |
| _____ | _____ | Calculated activities, uncertainties, and
MDAs |

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Gross Alpha and Beta (continued)

F. _____ Gross Alpha LCSs Data

_____ Gross Beta LCSs Data

Alpha

Beta

_____ Detector ID

_____ Analysis date

_____ LCS IDs

_____ Expected value obtained for LCSs with
uncertainty

_____ Aliquots

_____ Calculated activities, uncertainties, and
MDAs

_____ Count duration

G. _____ Gross Alpha Sample Data Package

_____ Gross Beta Sample Data Package

Alpha

Beta

_____ Printed report of results for sample, reruns

_____ Raw data from counter, copies of notebook pages

_____ Calculation sheets including: Sample ID; Detector ID;
sample and background counts; count duration; aliquot;
analysis date; planchet weight; detector efficiency; activities;
uncertainties; and MDAs

Technician

Date

APPENDIX 6

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226 Radium by Radon Emanation

- A. _____ Case Narrative
- _____ Copy of Chain-of-Custody
 - _____ SDG Number; cross reference lab sample ID to client ID
 - _____ Preparation Batch Code
 - _____ Abnormalities, reanalyses, or SOP deviations explained
 - _____ Matrix problems explained
 - _____ Instrument problems explained
 - _____ RDLs met, explained if not met
- B. _____ Calibration and Instrument Performance Verification Data Package
- _____ Detector ID
 - _____ Calibration dates for each detector
 - _____ Identification, certification dates, expiration date, and DPM values of the standard reference material used to prepare standards
 - _____ Raw data from counters showing counts obtained and count duration for standards
 - _____ Midpoint voltage of the plateau curve for the photomultiplier tube
 - _____ Statistical analysis of the weekly checksources
 - _____ Background counts obtained for each Lucas-type cell with count duration
- C. _____ Laboratory Blanks Data
- _____ ID of each cell/instrument combination used
 - _____ Analysis date
 - _____ Blank ID and matrix used
 - _____ Aliquot
 - _____ Calculated activities, uncertainties, and MDAs

APPENDIX 6

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²²⁶Radium by Radon Emanation (continued)

- D. _____ Replicate Sample Data
_____ ID of each cell/instrument combination used
_____ Analysis date
_____ Count duration
_____ Aliquot
_____ Calculated activities, uncertainties, and MDAs
- E. _____ LCSs Data
_____ ID of each cell/instrument combination used
_____ Analysis date
_____ LCS ID
_____ LCS expected activity and uncertainty
_____ LCS activities, uncertainties, and MDAs
- F. _____ Cell Constant Data Package
_____ ID of each cell or instrument combination used
_____ Concentration in pCi/l of solutions used in standard
bubblers
_____ Time interval between initial and final deemanations
_____ Counts obtained and count duration of standard for each
cell or instrument combination.
_____ Efficiency obtained for each cell or instrument combination
_____ Results of statistical evaluation of cell or instrument
efficiencies
- G. _____ Sample Data Package
_____ Printed report of results obtained for samples
_____ Computer calculations sheet including:
Sample ID; cell or instrument combination identification;
sample counts; background counts; count duration; aliquot;
cell constant values; time intervals between initial and final
deemanations; time intervals between final deemanation and
counting; calculated sample activities, uncertainties; and
MDAs

Technician

Date

APPENDIX 6

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Total Radiostrontium, Total Radiocesium, and Radium-228 by Gas Proportional Counter (GPC)

A. _____ Case Narrative

_____ Copy of Chain-of-Custody
_____ SDG Number; cross reference lab sample ID to client ID
_____ Preparation Batch Code
_____ Abnormalities, reanalyses, or SOP deviations explained
_____ Matrix problems explained
_____ Instrument problems explained
_____ RDLs met, explained if not met

B. _____ Strontium Initial Calibration Data Package

_____ Cesium Initial Calibration Data Package

_____ Ra-228 Initial Calibration Data Package

<u>Sr</u>	<u>Cs</u>	<u>Ra-228</u>
_____	_____	Detector ID
_____	_____	_____ Date and time calibrated, calibration check
_____	_____	_____ Radionuclide standard ID, NIST certification and expiration dates, and DPM value
_____	_____	_____ Aliquot of standards used
_____	_____	_____ Raw data from counters showing counts obtained and count duration for each weight of salt
_____	_____	_____ Weights of salts
_____	_____	_____ Efficiencies
_____	_____	_____ Best-fit curve coefficients
_____	_____	_____ Carrier weights added to planchets

APPENDIX 6

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Total Radiostrontium, Total Radiocesium, and Radium-228 by GPC (continued)

C. _____ Instrument Performance Verification Data

_____ Detector ID
_____ Date of verification check
_____ Reliability checksource name, NIST certification,
expiration and DPM activity
_____ Raw data from counters showing counts obtained and count
duration for reliability checksource
_____ Efficiency obtained for checksource
_____ Background counts obtained and count duration for each
detector

D. _____ Strontium Laboratory Blanks Data

_____ Cesium Laboratory Blanks Data

_____ Ra-228 Laboratory Blanks Data Package

<u>Sr</u>	<u>Cs</u>	<u>Ra-228</u>	
_____	_____	_____	Detector ID
_____	_____	_____	Analysis date
_____	_____	_____	Blank IDs and matrix used
_____	_____	_____	Aliquot
_____	_____	_____	Calculated activities, uncertainties, and MDAs
_____	_____	_____	Count duration

E. _____ Strontium Replicate Sample Data

_____ Cesium Replicate Sample Data

_____ Ra-228 Replicate Sample Data

<u>Sr</u>	<u>Cs</u>	<u>Ra-228</u>	
_____	_____	_____	Detector ID
_____	_____	_____	Analysis date
_____	_____	_____	Replicate IDs
_____	_____	_____	Count duration
_____	_____	_____	Calculated activities, uncertainties, and MDAs
_____	_____	_____	Aliquot

APPENDIX 6

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Total Radiostrontium, Total Radiocesium, and Radium-228 by GPC (continued)

F.	_____	Strontium LCSs Data			
	_____	Cesium LCSs Data			
	_____	Ra-228 LCSs Data			
		<u>Sr</u>	<u>Cs</u>	<u>Ra-228</u>	
		_____	_____	_____	Detector ID
		_____	_____	_____	Analysis date
		_____	_____	_____	LCS IDs
		_____	_____	_____	Expected value obtained for LCSs with uncertainty
		_____	_____	_____	Calculated activities, uncertainties, and MDAs
		_____	_____	_____	Count duration
G.	_____	Strontium Chemical Recovery Factors			
	_____	Cesium Chemical Recovery Factors			
	_____	Ra-228 Chemical Recovery Factors			
		<u>Sr</u>	<u>Cs</u>	<u>Ra-228</u>	
		_____	_____	_____	Aliquot
		_____	_____	_____	Amount of carrier added to the sample
		_____	_____	_____	Weight of sample precipitate
		_____	_____	_____	Results of Atomic Absorption analysis if the amount of stable strontium exceeded a few milligrams
		_____	_____	_____	Fractional chemical recovery of the nuclide of interest

APPENDIX 6

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Total Radiostrontium, Total Radiocesium, and Radium-228 by GPC (continued)

- H. _____ Strontium Efficiency Factors Data Package
 _____ Cesium Efficiency Factors Data Package
 _____ Ra-228 Efficiency Factors Data Package

<u>Sr</u>	<u>Cs</u>	<u>Ra-228</u>
_____	_____	_____ Certification date and DPM value of the standard
_____	_____	_____ Aliquot of standards
_____	_____	_____ Net CPMs obtained for standards
_____	_____	_____ Count date
_____	_____	_____ Efficiency derived from latest self-absorption curve

- I. _____ Strontium Sample Data Package
 _____ Cesium Sample Data Package
 _____ Ra-228 Sample Data Package

<u>Sr</u>	<u>Cs</u>	<u>Ra-228</u>
_____	_____	_____ Printed report of results for sample, reruns
_____	_____	_____ Raw data from counter, copies of notebook pages
_____	_____	_____ Calculations sheet including: Sample ID, detector ID, obtained sample and background counts and count duration observed, aliquot of sample, analysis date or time, weights of solids counted, detector efficiency, activities, uncertainties, and MDAs
_____	_____	_____ Precipitation date or time

Technician

Date

APPENDIX 6

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Total Uranium by Kinetic Laser Phosphorescence

- A. _____ Case Narrative
- _____ Copies of Chain-of-Custody
 - _____ SDG Number; cross reference lab sample ID to client ID
 - _____ Preparation Batch Code
 - _____ Abnormalities explained
 - _____ Matrix problems explained
 - _____ Instrument problems explained
- B. _____ Calibrations, Background, and Reference Cell Data Package
- _____ Instrument ID
 - _____ Dates of last calibration including: analyzer output; reference cell preparation; standard reference material certificates and DPMs of calibration and reference cell solutions.
 - _____ Date of last background measurement including: intensity (pulses) obtained; midpoint standard used for background, average activity and uncertainty obtained for the last ten backgrounds
- C. _____ Laboratory Blanks Data
- _____ Instrument ID
 - _____ Analysis date
 - _____ Blank ID and matrix used
 - _____ Aliquot
 - _____ Instrument output obtained
 - _____ Calculated activities, uncertainties, and MDAs

APPENDIX 6

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Total Uranium by Kinetic Laser Phosphorescence (continued)

- D. _____ Lab Replicate Sample Data
_____ Instrument ID
_____ Analysis date
_____ Replicate ID
_____ Instrument output obtained
_____ Aliquot
_____ Calculated activities, uncertainties, and MDAs
- E. _____ LCSs Data
_____ Instrument ID
_____ Analysis date
_____ LCS ID
_____ Instrument output
_____ Expected LCS value with uncertainty
_____ Calculated activities, uncertainties, and MDAs
- F. _____ Sample Data Package
_____ Printed report of results for samples and reruns
_____ Calculations sheet including: sample IDs; instrument ID;
instrument output obtained for samples; preparation volume of
samples; aliquot of samples and QC samples; activities
and uncertainties obtained

Technician

Date

Page 1 of 2

A.	<u> </u>	Cover Sheet/Transmittal Letter (one per data package shipment)
	<u> </u>	Case Narrative
B.	<u> </u>	Quality Control Summary Package
	<u> </u>	Pesticide Surrogate Recovery (Form 2E, 2F)
	<u> </u>	MS/MSD Recovery (Form 3E, 3F)
	<u> </u>	Method Blank Summary (Form 4C)
C.	<u> </u>	Sample Data Package (Alphanumerically)
	<u> </u>	Pesticide Organics Analysis Data Sheet (Form 1D)
	<u> </u>	GC Chromatograms
	<u> </u>	Data System Printouts (Quantitation Reports)
D.	<u> </u>	Standards Data Package (Chronologically by GC Column and Instrument)
	<u> </u>	Pesticide Initial Calibration of Single Component Analytes (Form 6D)
	<u> </u>	Pesticide Initial Calibration of Single Component Analytes (Form 6E)
	<u> </u>	Pesticide Initial Calibration of Multicomponent Analytes (Form 6F)
	<u> </u>	Pesticide Analyte Resolution Summary (Form 6G)
	<u> </u>	Pesticide Calibration Verification Summary (Form 7D)
	<u> </u>	Pesticide Calibration Verification Summary (Form 7E)
	<u> </u>	Pesticide Analytical Sequence (Form 8D)
	<u> </u>	Pesticide Florisil Cartridge Check (Form 9A)
	<u> </u>	Pesticide GPC Calibration (Form 9B)
	<u> </u>	Pesticide Identification Summary for Single Component Analytes (Form 10A)
	<u> </u>	Pesticide Identification Summary for Multicomponent Analytes (Form 10B)
	<u> </u>	GC Chromatograms
	<u> </u>	Data System Printouts (Quantitation Reports)
	<u> </u>	GPC Calibration Data

APPENDIX 7

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Organics Contract Compliance Checklist (Continued)

- E. _____ Raw QC Data Package
- _____ Method Blank Data
- _____ Pesticide Organics Analysis Data Sheet
(Form 1D)
- _____ GC Chromatograms
- _____ GC Data System Printouts (Quantitation
Reports)
- _____ Matrix Spike/Matrix Spike Duplicate Data
- _____ Pesticide Organics Analysis Data Sheet
(Form 1D)
- _____ GC Chromatograms
- _____ GC Data System Printouts (Quantitation
Reports)
- F. _____ Sample Tracking Package
- _____ Chain-of-Custody Records
- _____ Sample Preparation/Extraction Logbook Pages/Benchsheets
- _____ Instrument Run Logs

Technician

Date

APPENDIX 8

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ORGANICS CONTRACT COMPLIANCE CHECKLIST

Volatiles/Semi-Volatiles

- A. _____ Cover Sheet/Transmittal Letter (one per data package shipment)
 _____ Case Narrative
- B. _____ Quality Control Summary Package
 _____ Volatile System Monitoring Compound Recovery (Form 2A, 2B)
 _____ Semivolatile Surrogate Recovery (Form 2C, 2D)
 _____ Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery (Form 3A - 3D)
 _____ Method Blank Summary (Form 4A, 4B)
 _____ Organic Instrument Performance Check Bromofluoro benzene (BFB) (Form 5A)
 _____ Organic Instrument Performance Check DFTPP (Form 5B)
 _____ Internal Standard Area and Retention Time (RT) Summary (Form 8A - 8C)
- C. _____ Sample Data Package (Alphanumerical)
 _____ Organics Analysis Data Sheet (Form 1A - 1C)
 _____ Organics Analysis Data Sheet TICs (Form 1E - 1F)
 _____ Reconstructed Ion Chromatograms (RICs)
 _____ Quantitation Reports
 _____ Mass Spectral Data
 _____ NIST/EPA/MSDC Mass Spectral Library Search for TICs
- D. _____ Standards Data Package (Chronologically by Instrument)
 _____ Organics Initial Calibration Data (Form 6A - 6C)
 _____ Continuing Calibration Check (Form 7A - 7C)
 _____ Standard RICs
 _____ Standard Quantitation Reports
 _____ GPC Calibration Data

APPENDIX 8

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Volatiles/Semi-volatiles (continued)

- E. _____ Raw QC Data Package
- _____ Decafluoro triphenyl phosphine (DFTPP) and BFB Tuning
 - _____ Bar Graph Spectrum
 - _____ Mass Listing
 - _____ RIC
 - _____ Method Blank Data (Chronologically)
 - _____ Organics Analysis Data Sheet (Form 1A - 1C)
 - _____ Organics Analysis Data Sheet TICs (Form 1E - 1F)
 - _____ RICs
 - _____ Quantitation Reports
 - _____ Mass Spectral Data
 - _____ NIST/Environmental Protection Agency
(EPA)/MSDC Mass Spectral Library Search
for Tentatively Identified Compounds
(TICs)
 - _____ Matrix Spike/Matrix Spike Duplicate Data
 - _____ Organics Analysis Data Sheet (Form 1A - 1C)
 - _____ RICs
 - _____ Quantitation Reports
- F. _____ Sample Tracking Package
- _____ COC Records
 - _____ Sample Preparation/Extraction Logbook Pages/Benchsheets
 - _____ Instrument Run Logs

Technician

Date

APPENDIX 9

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METALS CONTRACT COMPLIANCE CHECKLIST

- A. ☐ Cover Sheet/Transmittal Letter (one per data package shipment)
☐ Case Narrative
- B. ☐ Forms
☐ Inorganic Analysis Data Sheets (Form 1)
☐ Initial and Calibration Verification Results (Form 2A)
☐ Contract Required Detection Limit (CRDL) Standard for AA
and ICP (Form 2B)
☐ Blank Analysis Results (Form 3)
☐ ICP Interference Check Sample Results (Form 4)
☐ Spiked Sample Recovery Results (Form 5A)
☐ Post/Digest Spiked Sample Recovery Results (Form 5B)
☐ Duplicate Sample Results (Form 6)
☐ Laboratory Control Sample Results (Form 7)
☐ Standard Addition Result (Form 8)
☐ ICP Serial Dilution Results (Form 9)
☐ Instrument Detection Limits (Form 10)
☐ ICP Interelement Correction Factors (Form 11A, 11B)
☐ ICP Linear Ranges (Form 12)
☐ Preparation Log (Form 13)
☐ Analysis Run Log (Form 14)
- C. ☐ Raw Data
☐ ICP Raw Data
☐ Flame Emission AA Raw Data
☐ Graphite Furnace AA Raw Data
☐ Mercury Raw Data
- D. ☐ Sample Digestion Logs
☐ ICP/Flame Digestion Logs
☐ Graphite Furnace Digestion Logs
☐ Mercury Digestion Logs
- E. ☐ Standard Preparation Logs
☐ Standard Source and Expiration Dates
☐ Percent Solids Calculations (Solids only)
- F. ☐ Chain-of-Custody Records
☐ Sample Description

Technician

Date

APPENDIX 10

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WATER QUALITY PARAMETERS CONTRACT COMPLIANCE CHECKLIST

- A. _____ Cover Sheet/Transmittal Letter (one per data package shipment)
 _____ Case Narrative
 _____ Water Quality Parameters (WQP) Analysis Data Package
 Cover Sheet
- B. _____ Forms
 _____ Sample Analysis Results Summary (Form I or equivalent)
 _____ Initial and Continuing Calibration Verification (Form II or
 equivalent)
 _____ Blank Results (Form III or equivalent)
 _____ Spiked Sample Results (Form IV or equivalent)
 _____ Laboratory Replicate Results (Form V or equivalent)
 _____ Laboratory Control Sample Results (Form VI or
 equivalent)
 _____ Sample Preparation (Form VII or equivalent)
- C. _____ Raw Data
 _____ Samples
 _____ Instrument Calibration Raw Data Results
 _____ Calibration Standards
 _____ Initial Calibration Verification (ICV)
 _____ Continuing Calibration Verification (CCV)
 _____ Method Blanks
 _____ Initial Calibration Blank (ICB)
 _____ Continuing Calibration Blank (CCB)
 _____ Spikes
 _____ Duplicates
 _____ LCS
- D. _____ Other
 _____ Standard Preparation Logs
 _____ Percent Solids Calculations (Solids only)
 _____ Chain-of-Custody Records
 _____ Instrument Run Logs (where applicable)

Technician

Date

APPENDIX 11

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MISSING PACKAGE REQUEST (SAMPLE)

Laboratory Contact: _____

REQUEST

Project #: _____ SDG/Batch #: _____

Contact History:

Contact#	Date of Request	Request Format	Individual Contacted
----------	-----------------	----------------	----------------------

(1)	_____	Phone / Fax / Letter	_____
(2)	_____	Phone / Fax / Letter	_____
(3)	_____	Phone / Fax / Letter	_____

RECEIPT

Date Resubmittal Data Received: _____

VERIFICATION

Data Verified By: _____ Date Verified: _____

Are the resubmittal data adequate? Yes/No

If no, initiate another Data Resubmittal Tracking Form and indicate Request Continuance and this Form # at the top of it.

Original Data Package, Yellow Copy-CTR, Pink Copy-Laboratory Contact

Laboratory: _____ Project #: _____

Laboratory SDG/Batch#: _____

Deficiency Identified By: _____ Date Deficiency Identified: _____

Date of Laboratory Contact (From Top Half of Form): _____

Fraction: Organics / Metals / Radiochemistry / Water Quality Parameter: _____

Describe the deficiency

Original Data Package, Yellow Copy-CTR, Pink Copy-Laboratory Contact

APPENDIX 12

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MISSING DATA REQUEST (SAMPLE)

Laboratory Contact: _____

REQUEST

Project #: _____ SDG/Batch #: _____

Contact History:

<u>Contact#</u>	<u>Date of Request</u>	<u>Request Format</u>	<u>Individual Contacted</u>
(1)	_____	Phone / Fax / Letter	_____
(2)	_____	Phone / Fax / Letter	_____
(3)	_____	Phone / Fax / Letter	_____

RECEIPT

Date Resubmittal Data Received: _____

VERIFICATION

Data Verified By: _____ Date Verified: _____

Are the resubmittal data adequate? Yes/No

If no, initiate another Data Resubmittal Tracking Form and indicate Request Continuance and this Form # at the top of it.

Original Data Package, Yellow Copy-CTR, Pink Copy-Laboratory Contact

Laboratory: _____ Project #: _____

Laboratory SDG/Batch#: _____

Deficiency Identified By: _____ Date Deficiency Identified: _____

Date of Laboratory Contact (From Top Half of Form): _____

Fraction: Organics / Metals / Radiochemistry / Water Quality Parameter: _____

Describe the deficiency (Include Laboratory Sample #s and the Client Sample #s)

Original Data Package, Yellow Copy-CTR, Pink Copy-Laboratory Contact